What is claimed is:

1. A radar measuring device, in particular for a motor vehicle, with a high-frequency oscillating device (11) which emits a first carrier frequency signal (F1) and a second carrier frequency signal (F2),
a first pulse-shaping device (12) which emits first pulse signals (P1),
a first switching device (14) which switches the first and second carrier frequency signals (F1, F2) as a function of the first pulse signal (P1) and emits first and second radar pulse signals (T1, 2),
a transmission antenna (16) which sends out radar pulse signals (T1, 2),
a second pulse-shaping device (23) which emits second pulse signals (P2) which are delayed relative to the first pulse signals (P1),
a second switching device (24) which switches the first and second carrier frequency signals (F1, F2) as a function of the second pulse signal (P2) and sends out first and second delayed radar pulse signals (S1, 2),
a receiving antenna (18) which receives first and second radar signals (R1, R2),
a mixing device (21) which mixes the received first and second radar signals (R1, 2) with the first and second delayed radar pulse signals (S1, 2) and emits first and second mixed signals (M1, 2),
a control device (7) which determines an amplitude signal from the first mixed signal (M1) and the second mixed signal (M2), whereby a first phase difference between the first received radar signals (R1) and the first delayed radar pulse signals (S1) differs from a second phase difference between the second received radar signals (R2) and the second delayed radar pulse signals (S2).

2. The radar measuring device as recited in Claim 1,
wherein the high-frequency oscillating device (11) includes exactly one HF oscillator (11) capable of being adjusted by a trigger signal (U1, 2), the HF oscillator emitting the first or second carrier frequency signal (F1, F2) as a function of the trigger signal.

3. The radar measuring device as recited in Claim 2,
wherein the HF oscillator (11) adjusts a carrier frequency as a function of the amplitude of the trigger signal (U1, 1) and emits the carrier frequency signal (F1, F2).

4. The radar measuring device as recited in Claim 3,
wherein the trigger signal is a direct-current signal with at least a first and a second direct voltage (U1, 2).

5. The radar measuring device as recited in Claim 4,
wherein it includes a direct-voltage source (9, 10) which is capable of being adjusted by the control device (7) and emits the first and second direct voltage (U1, 2).

6. The radar measuring device as recited in Claim 5,
wherein the adjustable direct-voltage source (9, 10) includes a voltage divider (10) capable of being adjusted via a control signal from the control device (7).

7. The radar measuring device as recited in one of the preceding claims,
wherein the mixer (21) convolutes the received radar signals (R1, 2) and the delayed radar pulse signals (S1, 2).

8. The radar measuring device as recited in one of the preceding claims,
wherein it includes a time-delay device (22) with changeable time delay (Δt), which emits a delayed clock signal to the second pulse-shaping device (23).

9. The radar measuring device as recited in Claim 8,
wherein the control device (7) scans a distance region between a minimum distance and a maximum distance by emitting a control signal to the time-delay device (22) and adjusts the various carrier frequency signals (F1, F2) while the distance region is being scanned.

10. A method for operating a radar measuring device, comprising the following steps:

Generate a first carrier frequency signal (F1),

Shape the initial pulse signals (P1),

Generate the first radar pulse signals (T1) from the pulse signal and the second carrier frequency signal (F1),

Send out the first radar pulse signals (T1),

Receive the reflected first radar signals (R1),

Shape the second pulse signals (P2), which are delayed relative to the first pulse signals (P1),

Generate the first delayed radar pulse signals (S1) from the first carrier frequency signal (F1) and the second pulse signal (P2),

Mix the first radar pulse signal (S1) and the received first radar signal (R1) and send out a first mixed signal (M1),

Generate a second carrier frequency signal (F2),

Generate second radar pulse signals (T2) from the first pulse signal (P1) and the second carrier frequency signal (F2),

Send out the second radar pulse signals (T2),

Receive reflected second radar signals (R2),

Generate second delayed radar pulse signals (S2) from the second carrier frequency signal (F2) and the second pulse signal (P2),

Mix the received second radar signals (R2) with the second delayed radar pulse signals (S2) and send out a second mixed signal (M2),

whereby a first phase difference located between the first received radar signal (R1) and the first delayed radar pulse signal (S1) is different than a second phase difference located between the second received radar signal (R1) and the second delayed radar pulse signal (S1),

Determine an amplitude signal from the first mixed signal (M1) and the second mixed signal (M2).

11. The method as recited in Claim 10,
wherein the two carrier frequency signals (F1, 2) are generated by changing a direct voltage (U1, 2) which triggers an HF oscillator (11).

12. The method as recited in Claim 11,
wherein the direct voltage (U1, 2) which triggers the HF oscillator (11) is produced using a controllable voltage divider (10).